How Many Different Sources Are There for (Coherent) Plasmaspheric Hiss and What Are the Implications for Subauroral Energetic Particle Precipitation?

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We will discuss the many different sources of coherent plasmaspheric hiss and their properties. Our previous understanding of plasmaspheric hiss was that it is typically low-intensity and incoherent. Wave-particle interactions would lead to slow pitch angle diffusion or a slow drizzle particle precipitation. However the previous precepts are not totally correct. We will show that duskside plasmaspheric hiss with ~300 to 650 Hz frequencies can be both intense (~2.0 nT peak-to-peak) and coherent. Such waves can and will lead to very rapid particle losses for L < 6, or the subauroral duskside region. We will examine hiss at other local times and L shells and report on their properties as well. The main purpose of this effort is to predict and explain subauroral particle precipitation.